

## **Resolution enhancement of composite spectra with fractal noise in derivative spectrometry**

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### **Abstract**

The problem of improving the resolution of composite spectra with statistically self-similar (fractal) noise is considered within the framework of derivative spectrometry. An algorithm of the numerical differentiation of an arbitrary (including fractional) order of spectra is produced by the statistical regularization method taking into account a priori information on statistical properties of the fractal noise. Fractal noise is analyzed in terms of the statistical Hurst method. The efficiency and expedience of this algorithm are exemplified by treating simulated and experimental IR spectra.

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